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Conference Abstract

ARISE: Building an infrastructure for species recognition and biodiversity monitoring in the Netherlands

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Abstract

ARISE (Authoritative and Rapid Identification System for Essential biodiversity information) is a digital infrastructure with the mission to provide semi-automated identification of all multicellular species in the Netherlands and innovate on biodiversity monitoring solutions. By applying DNA barcoding, artificial intelligence for species recognition based on images, sound and radar, and emerging technology for biodiversity monitoring, we can radically speed up the inventory of life on earth. The infrastructure relies on a species reference database, which brings together new and existing biodiversity information on all multicellular species in the Netherlands. ARISE will be open-access and organize data according to FAIR principles (findable, accessible, interoperable and reusable). We will develop the infrastructure for the Dutch research community with financial support from the Dutch Research Council. ARISE is a partnership between the Naturalis Biodiversity Center, the University of Amsterdam, Westerdijk Institute and the University of Twente. With an Agile development approach, we will build iteratively guided by use cases and real-life challenges. Facilities and services include streamlined and accesible species sampling and (meta)barcoding, machine learning services to analyse digital input and a digital platform where all data and services come together powered by a state of the art data management

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system based on digital objects. We will be driven by continuous feedback from external scientists and representatives of species monitoring organizations. With ARISE, we will provide the scientific community with the foundation for automated recognition and monitoring of the entire Dutch biodiversity. Furthermore, ARISE will provide a basis for better biodiversity monitoring to provide policy makers with more reliable information on biodiversity and ecosystem change. This presentation will give an overview of work in progress, demonstrating several pilot versions of facilities and services, and what we envision to build in the future.

Keywords

species reference, DNA barcoding, data platform, AI, sensors

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